CIVIL AIM CONSULTANTS & ENGINEERS

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NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/SNM/W.No.14/2022-23

Date: 20.07.2022

Specific Gravity And Water Absorption Test

Client	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**Sri Shivakumar N M,Contractor, Bangalore.**
Name of the Work	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	18.07.2022 to 20.07.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2023	2021	2024	
2	Weight of basket suspended in water	W_2 g	757	758	756	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1266	1263	1268	
4	Weight of saturated surface dry aggregate in air	W_3 g	2017	2016	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	751	753	747	
6	Weight of oven dried aggregate	W_4 g	2007	2007	2005	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.672	2.665	2.684	2.674
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.709	2.698	2.720	2.709
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.45%	0.50%	0.48%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0%(As per MORTH table 500.8)

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

Note:

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3. Any Query regarding the report must be reported within 30 days from the date of testing

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 22.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**Sri Shivakumar N M,**Contractor, Bangalore.
Name of the Work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	22.07.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.25	10.12	9 Kn (min)
2	Marshal flow, mm	2.68	3.58	2 – 4
3	Percent air voids in Mineral Aggregate	13.79	14.35	13 – 15
4	Voids in Compacted Mix	3.84	4.26	3 – 6
5	Percent Voids filled with Bitumen	68.91	69.57	65 - 75
6	Density, g/cc	2.25	2.27	--

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 22.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore..**
Agency	:	**Sri Shivakumar N M,**Contractor, Bangalore.
Name of the Work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	22.07.2022

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.62	10.06	9 Kn (min)
2	Marshal flow, mm	2.79	3.75	2 – 4
3	Percent air voids in Mineral Aggregate	13.17	14.30	13 – 15
4	Voids in Compacted Mix	3.22	4.45	3 – 6
5	Percent Voids filled with Bitumen	67.88	70.59	65 - 75
6	Density, g/cc	2.23	2.25	--

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For CIVIL AIM CONSULTANTS & ENGINEERS

Sukantha. S. C.

Authorised Signatory

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 22.07.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	Sri Shivakumar N M,Contractor, Bangalore.
Name of the Work	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Date of Testing	22.07.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.50	23.00
7. Bitumen content in %	4.70	4.60
8. Average	4.65	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.2	36.2	7.6	92.4	90 - 100
19	72.5	108.7	22.8	77.2	71 - 95
13.2	65.2	173.9	36.5	63.5	56 - 80
4.75	83.2	257.1	54.0	46.0	38 - 54
2.360	75.2	332.3	69.7	30.3	28 - 42
0.300	96.1	428.4	89.9	10.1	7 - 21
0.075	21.9	450.3	94.5	5.5	2 - 8

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.10
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	36.6	36.6	7.7	92.3	90 - 100
19	73.2	109.8	23.0	77.0	71 - 95
13.2	66.1	175.9	36.9	63.1	56 - 80
4.75	84.40	260.3	54.6	45.4	38 - 54
2.360	78.8	339.1	71.1	28.9	28 - 42
0.300	98.8	437.9	91.8	8.2	7 - 21
0.075	23.1	461	96.6	3.4	2 - 8

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Authorised Signatory

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 22.07.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE GRADED BITUMINOUS MACADAM MIX AASHTO T 164 & AASHTO T 30

Client	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
Agency	Sri Shivakumar N M,Contractor, Bangalore.
Name of the Work	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Date of Testing	22.07.2022

BITUMEN CONTENT DETERMINATION

Description	Test 1	Test 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	477.5	477
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	22.50	23.00
7. Bitumen content in %	4.50	4.60
8. Average	4.55	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.10
37.5	0	0	0	100	100
26.5	35.9	35.9	7.5	92.5	90 - 100
19	72.1	108	22.6	77.4	71 - 95
13.2	63.3	171.3	35.9	64.1	56 - 80
4.75	87.7	259	54.2	45.8	38 - 54
2.360	74.2	333.2	69.8	30.2	28 - 42
0.300	99.2	432.4	90.6	9.4	7 - 21
0.075	22.9	455.3	95.4	4.6	2 - 8

SIEVE SIZE	Test 2				
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	Requirement as per MORTH table 500.10
37.5	0	0	0	100	100
26.5	36.5	36.5	7.7	92.3	90 - 100
19	73.4	109.9	23.0	77.0	71 - 95
13.2	66.8	176.7	37.0	63.0	56 - 80
4.75	84.50	261.2	54.8	45.2	38 - 54
2.360	78.6	339.8	71.2	28.8	28 - 42
0.300	98.5	438.3	91.9	8.1	7 - 21
0.075	23.4	461.7	96.8	3.2	2 - 8

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 20.07.2022

Aggregate Impact Value

Client	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**Sri Shivakumar N M,Contractor, Bangalore.**
Name of the Work	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	20.07.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	384	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84.5	85.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299.5	297.5	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	22.01	22.32	**22.16**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date : 20.07.2022

Aggregate Gradation Test

IS : 2386 Part I

Client	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**Sri Shivakumar N M,Contractor, Bangalore.**
Name of the Work	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	20.07.2022

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	425	8.50	8.50	91.50	90 - 100	
9.5	499	9.98	18.48	81.52	70 - 88	
4.75	649	12.98	31.46	68.54	53 - 71	
2.36	678	13.56	45.02	54.98	42 - 58	
1.18	511	10.22	55.24	44.76	34 - 48	
0.600	537	10.74	65.98	34.02	26 - 38	
0.300	500	10.00	75.98	24.02	18 - 28	
0.150	375	7.50	83.48	16.52	12 - 20	
0.075	491	9.82	93.30	6.70	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	429	8.58	8.58	91.42	90 - 100	
9.5	531	10.62	19.20	80.80	70 - 88	
4.75	670	13.40	32.60	67.40	53 - 71	
2.36	513	10.26	42.86	57.14	42 - 58	
1.18	569	11.38	54.24	45.76	34 - 48	
0.600	555	11.10	65.34	34.66	26 - 38	
0.300	691	13.82	79.16	20.84	18 - 28	
0.150	205	4.10	83.26	16.74	12 - 20	
0.075	476	9.52	92.78	7.22	4 - 10	

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 20.07.2022

TEST REPORT

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**Sri Shivakumar N M,**Contractor, Bangalore.
Name of the work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	20.07.2022

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	59	Min 45
2	Softening point, ^{0}C	54	Min. 47
3	Ductility at 27^{0}C, cm	> 100	Min. 40
4	Flash Point, ^{0}C	270	Min. 220

Note:

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TEST REPORT

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**Sri Shivakumar N M,**Contractor, Bangalore.
Name of the work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	20.07.2022

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	59	Min 45
2	Softening point, ^{0}C	54	Min. 47
3	Ductility at 27^{0}C, cm	> 100	Min. 40
4	Flash Point, ^{0}C	270	Min. 220

Note:

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date : 22.07.2022

Specific Gravity And Water Absorption Test

Client	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**Sri Shivakumar N M,Contractor, Bangalore.**
Name of the Work	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Bituminous Concrete
Date of Testing	20.07.2022 to 22.07.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2022	2023	2026	
2	Weight of basket suspended in water	W_2 g	753	755	756	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1269	1268	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2016	2018	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	747	750	750	
6	Weight of oven dried aggregate	W_4 g	2010	2011	2012	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.691	2.681	2.683	2.685
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.713	2.707	2.712	2.710
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.30%	0.35%	0.40%	0.35%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 23.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**Sri Shivakumar N M,**Contractor, Bangalore.
Name of the Work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	23.07.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.48	9.95	9 Kn (min)
2	Marshal flow, mm	3.12	2.97	2 – 4
3	Percent air voids in Mineral Aggregate	13.22	14.35	13 – 15
4	Voids in Compacted Mix	3.63	4.66	3 – 6
5	Percent Voids filled with Bitumen	69.29	68.25	65 - 75
6	Density, g/cc	2.25	2.25	--

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
Ph: 9591618639, GSTIN: 29CNWPD9510K1ZB, Email: civilaimconsultants@gmail.com

CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 23.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**Sri Shivakumar N M,Contractor, Bangalore.**
Name of the Work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	23.07.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.67	9.54	9 Kn (min)
2	Marshal flow, mm	3.46	2.58	2 – 4
3	Percent air voids in Mineral Aggregate	13.78	14.45	13 – 15
4	Voids in Compacted Mix	3.12	4.52	3 – 6
5	Percent Voids filled with Bitumen	70.25	71.61	65 - 75
6	Density, g/cc	2.21	2.23	--

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 23.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**Sri Shivakumar N M,**Contractor, Bangalore.
Name of the Work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	23.07.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.75	10.15	9 Kn (min)
2	Marshal flow, mm	3.25	3.5	2 – 4
3	Percent air voids in Mineral Aggregate	14.1	14.25	13 – 15
4	Voids in Compacted Mix	4.1	4.12	3 – 6
5	Percent Voids filled with Bitumen	67.29	69.12	65 - 75
6	Density, g/cc	2.21	2.24	--

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 25.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**Sri Shivakumar N M,**Contractor, Bangalore.
Name of the Work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	25.07.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.25	9.58	9 Kn (min)
2	Marshal flow, mm	3.67	2.45	2 – 4
3	Percent air voids in Mineral Aggregate	13.46	14.52	13 – 15
4	Voids in Compacted Mix	3.78	4.61	3 – 6
5	Percent Voids filled with Bitumen	70.12	71.15	65 - 75
6	Density, g/cc	2.25	2.26	--

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date: 25.07.2022

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	:	**Sri Shivakumar N M,**Contractor, Bangalore.
Name of the Work	:	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	25.07.2022

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.55	9.91	9 Kn (min)
2	Marshal flow, mm	2.81	3.25	2 – 4
3	Percent air voids in Mineral Aggregate	13.88	14.12	13 – 15
4	Voids in Compacted Mix	4.12	3.25	3 – 6
5	Percent Voids filled with Bitumen	70.81	68.93	65 - 75
6	Density, g/cc	2.25	2.26	--

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Job No.: CACE/BBMP/SNM/W.No.14/2022-23 Date : 23.07.2022

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri Shivakumar N M,Contractor, Bangalore.
NAME OF THE WORK	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	23.07.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469	470
3. Weight of Asphalt and Mineral matter Extracted, g	31	30
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	31	30
7. Bitumen content in %	6.20	6.00
8. Average	6.10	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.2	13.2	2.8	97.2	90 - 100
9.5	69.1	82.3	17.5	82.5	70 - 88
4.75	92.2	174.5	37.2	62.8	53 - 71
2.36	42.2	216.7	46.2	53.8	42 - 58
1.18	36.6	253.3	54.0	46.0	34 - 48
0.600	50	303.3	64.7	35.3	26 - 38
0.300	46.6	349.9	74.6	25.4	18 - 28
0.150	35.5	385.4	82.2	17.8	12 - 20
0.075	46.5	431.9	92.1	7.9	4 - 10

SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.4	14.4	3.1	96.9	90 - 100
9.5	62.2	76.6	16.3	83.7	70 - 88
4.75	89.9	166.5	35.4	64.6	53 - 71
2.36	46.5	213	45.3	54.7	42 - 58
1.18	43.5	256.5	54.6	45.4	34 - 48
0.600	52.2	308.7	65.7	34.3	26 - 38
0.300	49.9	358.6	76.3	23.7	18 - 28
0.150	35.5	394.1	83.9	16.1	12 - 20
0.075	40.2	434.3	92.4	7.6	4 - 10

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri Shivakumar N M,Contractor, Bangalore.
NAME OF THE WORK	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	23.07.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.5	469.5
3. Weight of Asphalt and Mineral matter Extracted, g	30.5	30.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30.5	30.5
7. Bitumen content in %	6.10	6.10
8. Average	6.10	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.7	13.7	2.9	97.1	90 - 100
9.5	64.9	78.6	16.7	83.3	70 - 88
4.75	91.3	169.9	36.2	63.8	53 - 71
2.36	48.2	218.1	46.5	53.5	42 - 58
1.18	36.8	254.9	54.3	45.7	34 - 48
0.600	57.6	312.5	66.6	33.4	26 - 38
0.300	43.3	355.8	75.8	24.2	18 - 28
0.150	35.9	391.7	83.4	16.6	12 - 20
0.075	40.1	431.8	92.0	8.0	4 - 10

SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.9	13.9	3.0	97.0	90 - 100
9.5	65.2	79.1	16.8	83.2	70 - 88
4.75	92.1	171.2	36.5	63.5	53 - 71
2.36	45.1	216.3	46.1	53.9	42 - 58
1.18	48.9	265.2	56.5	43.5	34 - 48
0.600	56	321.2	68.4	31.6	26 - 38
0.300	44.8	366	78.0	22.0	18 - 28
0.150	37.1	403.1	85.9	14.1	12 - 20
0.075	31.6	434.7	92.6	7.4	4 - 10

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri Shivakumar N M,Contractor, Bangalore.
NAME OF THE WORK	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	23.07.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.5	469
3. Weight of Asphalt and Mineral matter Extracted, g	30.5	31
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30.5	31
7. Bitumen content in %	6.10	6.20
8. Average	6.15	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.6	13.6	2.9	97.1	90 - 100
9.5	66.6	80.2	17.1	82.9	70 - 88
4.75	92.2	172.4	36.7	63.3	53 - 71
2.36	42.9	215.3	45.9	54.1	42 - 58
1.18	37.5	252.8	53.8	46.2	34 - 48
0.600	51.9	304.7	64.9	35.1	26 - 38
0.300	46.6	351.3	74.8	25.2	18 - 28
0.150	35.5	386.8	82.4	17.6	12 - 20
0.075	46.6	433.4	92.3	7.7	4 - 10

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.7	14.7	3.1	96.9	90 - 100
9.5	62.1	76.8	16.4	83.6	70 - 88
4.75	91.9	168.7	36.0	64.0	53 - 71
2.36	46	214.7	45.8	54.2	42 - 58
1.18	43.1	257.8	55.0	45.0	34 - 48
0.600	51.1	308.9	65.9	34.1	26 - 38
0.300	48.1	357	76.1	23.9	18 - 28
0.150	34.6	391.6	83.5	16.5	12 - 20
0.075	41.8	433.4	92.4	7.6	4 - 10

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri Shivakumar N M,Contractor, Bangalore.
NAME OF THE WORK	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	25.07.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469	468.5
3. Weight of Asphalt and Mineral matter Extracted, g	31	31.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	31	31.5
7. Bitumen content in %	6.20	6.30
8. Average	6.25	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.6	14.6	3.1	96.9	90 - 100
9.5	66.3	80.9	17.2	82.8	70 - 88
4.75	89.4	170.3	36.3	63.7	53 - 71
2.36	45	215.3	45.9	54.1	42 - 58
1.18	35.8	251.1	53.5	46.5	34 - 48
0.600	54.3	305.4	65.1	34.9	26 - 38
0.300	41.8	347.2	74.0	26.0	18 - 28
0.150	35.3	382.5	81.6	18.4	12 - 20
0.075	41.2	423.7	90.3	9.7	4 - 10

SIEVE SIZE	Test 2				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.9	14.9	3.2	96.8	90 - 100
9.5	66.2	81.1	17.3	82.7	70 - 88
4.75	92.8	173.9	37.1	62.9	53 - 71
2.36	45.3	219.2	46.8	53.2	42 - 58
1.18	48.2	267.4	57.1	42.9	34 - 48
0.600	56.3	323.7	69.1	30.9	26 - 38
0.300	45.8	369.5	78.9	21.1	18 - 28
0.150	37.9	407.4	87.0	13.0	12 - 20
0.075	32.6	440	93.9	6.1	4 - 10

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For CIVIL AIM CONSULTANTS & ENGINEERS

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	Assistant Executive Engineer, Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	Sri Shivakumar N M,Contractor, Bangalore.
NAME OF THE WORK	Comprehensive Development works in Ward No.14,Dasarahalli Sub Division,BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	25.07.2022

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	468.5	469.5
3. Weight of Asphalt and Mineral matter Extracted, g	31.5	30.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	31.5	30.5
7. Bitumen content in %	6.30	6.10
8. Average	6.20	

GRADATION AFTER EXTRACTION

SIEVE SIZE mm	Test 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14	14	3.0	97.0	90 - 100
9.5	69.3	83.3	17.8	82.2	70 - 88
4.75	93.9	177.2	37.8	62.2	53 - 71
2.36	43.5	220.7	47.1	52.9	42 - 58
1.18	38.2	258.9	55.3	44.7	34 - 48
0.600	39.2	298.1	63.6	36.4	26 - 38
0.300	46.3	344.4	73.5	26.5	18 - 28
0.150	36.2	380.6	81.2	18.8	12 - 20
0.075	46.9	427.5	91.2	8.8	4 - 10

SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.6	14.6	3.1	96.9	90 - 100
9.5	61.8	76.4	16.3	83.7	70 - 88
4.75	91.1	167.5	35.7	64.3	53 - 71
2.36	46.3	213.8	45.5	54.5	42 - 58
1.18	43.1	256.9	54.7	45.3	34 - 48
0.600	52.1	309	65.8	34.2	26 - 38
0.300	49.8	358.8	76.4	23.6	18 - 28
0.150	35.8	394.6	84.0	16.0	12 - 20
0.075	40.2	434.8	92.6	7.4	4 - 10

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples collected at the site.
- Any Query regarding the report must be reported within 30 days from the date of testing

For CIVIL AIM CONSULTANTS & ENGINEERS

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